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Solution No. 2 is the official Liquor Sodæ Chloratæ of the U. S. P., and should be added to No. 1 in small portions, as stated above. In preparing this solution, add more sodium carbonate if the calcium is not all precipitated.

In repeated operations I obtained 89 to 91 per cent. of the hypothetical amount of iodoform, which is equivalent to the same percentage of the iodine employed. The mother liquor contains 2 per cent. of the iodine as iodides, which leaves about 8 per cent. to be accounted for. We think by proper adjustment of the solutions the above 2 per cent. can be recovered as iodoform, and we are also of the opinion that the 8 per cent. mentioned exists as iodoform dissolved in the mother liquor.

Electricity.—Seeing statements to the effect that iodoform could be produced by electralizing solutions of the iodides with acetone or aldehyde receiving a continuous stream of CO_2, and the accompanying statement that if sodium or calcium iodide was used, the CO_2 was unnecessary. I thought I might be able to take a step toward bringing pharmaceutical preparations into communion with the electric age in which we live. I tried the experiment, and it was a *grand success.* With five Bunsen cells arranged in series, I was able to produce iodoform from all the different substances I tried containing iodine either free or in combination as soluble iodides. The precipitate formed slowly and steadily from all but the calcium iodide, from which it was thrown down very rapidly. But on examining the product, I was tempted to call it something like *iodocalioform* to indicate its true composition, containing 25 per cent. of calcium carbonate.

Electralysis of calcium iodide might be a profitable method for the preparation of iodoform, but since I tried it, I maintain that this method would be more consistent with the operations of the Physics Department than those of the Pharmaceutical.

ESTIMATION OF VOLATILE OIL IN MUSTARD.

BY L. E. SAYRE, LAWRENCE.

The object of this investigation has been to obtain, if possible, a simple method by which to estimate the value of mustard. The elaborate analyses recommended by different chemists, by which the various proximate principles of mustard are isolated and weighed, take considerable time, and admit of many sources of error. Hassell's method of estimating the volatile oil, by receiving the distillate from the aqueous mixture of mustard, in ammonia, evaporating, and weighing the crystals of thiosinamin, is apt to give variable results, because of the fact that the volatile oil escapes, to a greater or less extent, through the ammonia, in spite of the greatest care on the part of the operator.

The important constituents of mustard, it may be known, are *sinigrin* (myronate of potassium), from the black and *sinalbin* from the white mustard. Besides these they contain *myrosin,* which acts as an albuminous ferment. When powdered mustard is moistened this ferment acts upon the glucosides, forming volatile oil, sulphate of potassium and glucose as products of decomposition, or fermentation.

A favorite method of estimating mustard, by some chemists, has been to convert the whole of the sulphur contained in the mustard into sulphates by the action of nitric acid, and to estimate the sulphate by use of barium chloride, deducting from the total sulphates the amount of inorganic sulphates found in the ash.

It occurred to me that there might be a means by which mustard might be estimated by distillation of the volatile oil into some solution containing a substance which would unite with the sulphur or compound of sulphur so readily that none of it could escape, and thus give us a ratio between this compound and genuine mustard. I can at present give only the result of a few experiments, and will not attempt to draw any definite conclusions.

Not until I have been able to make a number of experiments with our new method will I be able to say anything positive as to its merits as a guide in the estimation of this substance. If, however, I find by repeated trials that I can establish a definite ratio, I have here a method that will serve the purposes of the pharmacist admirably.

The pharmacist needs ready methods for quickly arriving at qualitative determinations; he needs easily-managed, practical methods to distinguish the genuine from adulterated articles. This gives rise to the particular kind of manipulations known to the pharmacist as pharmaceutical chemistry. While this process may not satisfy the analyst, it may be superior to other processes for the use of the pharmacist.

The apparatus I have decided upon after a long series of trials, consists of a condenser, graduated receiver, and a small Florence flask of two- or three-ounce capacity to take the place of a retort. The graduated receiver is about two inches in diameter, and contains 20 cc. of $\frac{N}{10}$ solution of silver nitrate, introduced from a burette. To the condenser is attached a tube which will just sit loosely in the receiver and extend to the bottom of the silver solution.

All joints are made air-tight by the use of perforated rubber corks and a moderate heat applied to the solution containing the mustard. Continue distillation till a vacuum is formed in the condenser, now remove the flame and the silver solution will be drawn up into the tube at the mouth of the condenser. Repeat the application and withdrawal of the heat till the volatile oil is all absorbed by the silver solution. A small tube closed by a stop-cock may be placed in the retort, and by blowing through this any vapor still in the condenser may easily be forced out.[*] Now titrate the silver solution (after noting its exact volume) with $\frac{N}{10}$ sodium chloride. Suppose after distillation our receiver contains 40 cc., or if not, it is very convenient to make it up to that amount with distilled water. Now suppose it required 10.7 cc. of this solution to neutralize 5 cc. of $\frac{N}{10}$ sodium chloride, then by proportion we find the amount of undecomposed silver nitrate. Subtracting this from the 20 cc. with which we started, we find the amount precipitated by the volatile oil:

10.7 : 5 :: 40 : 18.691—Ag NO_3 unprecipitated.

20 — 18.691 = 1.309 cc.—Ag NO_3 precipitated.

.016966—Ag NO_3 in 1 cc. $\times$ 1.309 = .0222 gm. silver nitrate precipitated by the volatile oil from .5 gm. of pure mustard.

CORRECTION.

BY N. S. GOSS, TOPEKA.

In my Revised Catalogue of the Birds of Kansas, I described what I then supposed to be the nest and eggs of the Sycamore Warbler—*Dendroica dominica albi lora.* I am now satisfied that the evidence is not reliable upon which the entry is based.

I have met with the birds upon several occasions in the State, during the summer months, on the banks of the Neosho river, and always in or about the large sycamore

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[*] The apparatus and manner of using it were shown to the audience.